DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
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Ser N889H1/0U662335
14 July 2000

From: Chief of Naval Operations (N889H)
To: Commander, Naval Air Systems Command (PMA205-BA2)

REQUEST FOR APPROVAL OF PROPOSED NAVY TRAINING SYSTEMS PLAN (NTSP) FOR THE A/E 37T-32 VIBRATION ANALYSIS TEST SET N88-NTSP-A-50-8620C/A

(a) COMNAVAIRSYSCOM ltr 3502 Ser PMA205-BA2/0400008

(1) NTSP dated March 2000

1. In reply to reference (a), subject NTSP has been reviewed and is approved after incorporation of changes marked in enclosure (1). The NTSP will be distributed via the OPNAV N889H (Naval Aviation Technical Training) web site (http://www.avtechtra.navy.mil). If your activity is unable to access the OPNAV web site and download the subject NTSP for review, contact ATCS (AW) Morris at DSN 757-9173, Comm: (301) 757-9173 for assistance.

2. OPNAV point of contact is LCDR M. E. Belcher (N889H1), DSN 664-7714, Comm: (703) 604-7714.

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Copy to:
COMNAVAIRSYSCOM (AIR-3.4.1)

NAVY TRAINING SYSTEM PLAN

FOR THE

A/E 37T-32 VIBRATION ANALYSIS

TEST SET

N88-NTSP-A-50-8620C/A

JULY 2000

A/E 37T-32 VIBRATION ANALYSIS TEST SET

EXECUTIVE SUMMARY

This Navy Training System Plan identifies the life cycle manpower, personnel, and training required to support the A/E 37T-32 Vibration Analysis Test Set (VATS) program. The VATS is a multi-function instrumentation system used for vibration analysis, propeller balancing, and helicopter rotor tracking and balancing. The VATS is also used for fault isolation in aircraft drive systems, flight controls, and airframe components, supporting both rotary and fixed wing aircraft. The Initial Operational Capability for VATS was attained in September 1990. VATS is in Phase III (Production, Deployment, and Operational Support) of the Weapon System Acquisition Process.

Navy personnel operate the VATS at the organizational and depot maintenance levels, and it is maintained by intermediate and depot level maintenance personnel. Personnel from intermediate level Work Center 670 Precision Measuring Equipment and Field Calibration Activity repair VATS. The VATS camera and three of the internal cards in the Computer Indicator Power Supply (CIPS), which include the Random Access Memory (RAM) card, the extended memory RAM card, and the analog input number two card, are repaired at the depot level. VATS introduction has not caused an increase or decrease in previously existing manpower requirements.

Technical Evaluation (TECHEVAL) was completed at the Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, Maryland. The VATS manufacturer, Dynamic Instruments, Inc., conducted initial training in second quarter FY91. Naval Air Technical Data and Engineering Service Command (NATEC) representatives and Navy instructors from various activities attended initial training.

Follow-on training is integrated into existing power plants training tracks for each type aircraft. Vibration Analysis Theory and Familiarization training is conducted at the Maintenance Training Units (MTU), Naval Air Maintenance Training Units (NAMTRAU) located at Naval Station (NS) Norfolk, Virginia; Naval Air Station (NAS) North Island, California; NAS Jacksonville, Florida, and Naval Air Maintenance Training Group Detachments (NAMTRAGRU DET) Marine Corps Air Station (MCAS) Miramar, California; Marine Corps Base (MCB) Camp Pendleton; and NS Mayport, Florida. All courses have been modified and require no further changes. Modifications performed did not cause any changes in course or track lengths. NATEC representatives conduct Practical Job Training as required.

MTU 1025 NAMTRAGRU DET will be moving from MCAS Miramar to NAS Point Mugu, California, beginning in June 2000. The move is currently scheduled for completion with all courses ready for training in October 2000.

A/E 37T-32 VIBRATION ANALYSIS TEST SET

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A/E 37T-32 VIBRATION ANALYSIS TEST SET

LIST OF ACRONYMS

AD	Aviation Machinist's Mate
AE	Aviation Electrician's Mate
AIMD	Aircraft Intermediate Maintenance Department
AMTCS	Aviation Maintenance Training Continuum System
AT	Aviation Electronics Technician
CBT	Computer-Based Training
ILSP	Integrated Logistics Support Plan
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MIM	Maintenance Instruction Manual
MOS	Military Occupational Specialty
MPT	Manpower, Personnel, and Training
MTIP	Maintenance Training Improvement Program
MTU	Maintenance Training Unit
NA	Not Applicable
NADEP	Naval Aviation Depot
NAMTRAGRU DET	Naval Air Maintenance Training Group Detachment
NAMTRAU	Naval Air Maintenance Training Unit
NAS	Naval Air Station
NATEC	Naval Air Technical Data and Engineering Service Command
NAWCAD	Naval Air Warfare Center Aircraft Division
NEC	Navy Enlisted Classification
NTSP	Navy Training System Plan
PJT	Practical Job Training
RAM	Random Access Memory
RFOU	Ready For Operational Use
TTE	Technical Training Equipment
VA	Vibration Analysis
VATS	Vibration Analysis Test Set

A/E 37T-32 VIBRATION ANALYSIS TEST SET

PREFACE

This Approved Navy Training System Plan (NTSP) for the A/E 37T-32 Vibration Analysis Test Set (VATS) program has been prepared to update the Draft A/E 37T-32 Vibration Analysis Test Set Navy Training System Plan, A-50-8620C/D, dated December 1999. This NTSP complies with guidelines set forth in the Navy Training Requirements Documentation Manual, OPNAV Publication P-751-1-9-97. Specifically, this NTSP reflects the following changes to the VATS program:

- Updates the Description of New Development
- Updates Training Concepts
- Updates Training Logistics Support Requirements
- Updates Program Manpower, Personnel and Training Milestones
- Updates Points of Contact listing
- Incorporates a Summary of Comments

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

1. **Nomenclature-Title-Acronym.** A/E 37T-32 VATS

2. **Program Element.** 78012N

B. SECURITY CLASSIFICATION

1. **System Characteristics** ..... Unclassified
2. **Capabilities** ..... Unclassified
3. **Functions** ..... Unclassified

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

OPNAV Principal Official (OPO) Program Sponsor ..... CNO (N881)

OPO Resource Sponsor ..... CNO (N881)

Marine Corps Program Sponsor ..... CMC (APW-53)

Developing Agency ..... NAVAIRSYSCOM (PMA260)

Training Agency ..... CINCLANTFLT
CINCPACFLT
CNET
CMC

Training Support Agency ..... NAVAIRSYSCOM (PMA205)

Manpower and Personnel Mission Sponsor ..... CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)

Director of Naval Training ..... CNO (N7)

Marine Corps Force Structure ..... MCCDC (C53)

D. SYSTEM DESCRIPTION

1. Operational Uses. The A/E 37T-32 VATS is used on Navy and Marine Corps aircraft by organizational and depot maintenance personnel to track and balance rotors, propellers, and turbofans, and to monitor the vibration of aircraft and aircraft dynamic components under field conditions. The VATS is capable of measuring the vibration frequency and magnitude for engines, transmissions, gear boxes, dynamic drive systems, and airframes. The VATS is used to fault isolate vibration discrepancies and monitor the health of dynamic components and the airframe through vibration trend analysis tracking.

Vibration Analysis (VA) is a means of determining mechanical system faults such as imbalance, misalignment, mechanical looseness, gear tooth defects, bearing defects, and structural and component resonance. The VATS is used as a VA failure isolation and prediction tool. This results in increased readiness due to a reduced vibration discrepancy maintenance workload.

VA tasks which the VATS is intended to accomplish are:

- H-53 main and tail rotor track and balance, transmission, gearbox, drive shafts, and airframe monitoring
- H-3 main and tail rotor track and balance, transmission, gearbox, drive system, and airframe monitoring
- H-60 main and tail rotor track and balance, transmission, gearbox, drive system, airframe monitoring, and vibration absorber tuning
- H-1 main and tail rotor track and balance, transmission, gearbox, drive system, airframe monitoring, and vibration absorber tuning
- E-2 and C-2 on-aircraft propeller balancing and airframe monitoring
- S-3 fan rotor assembly balancing

Other aircraft utilize several different types of equipment for VA and are not mentioned in this NTSP for that reason.

2. Foreign Military Sales. Not Applicable (NA)

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. VATS Technical Evaluation and Operational Evaluation were conducted in August 1990 by the Propulsion Support Equipment Evaluation and Verification Branch, Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, Maryland. Software testing is ongoing at NAWCAD Patuxent River, Maryland, and NAWCAD Lakehurst, New Jersey.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. VA systems formerly in use were designed to meet individual needs for specific aircraft and engines.

The two VATS configurations, fixed and rotary wing, replaced all of the VA equipment listed in the table below:

AIRCRAFT, ENGINE	DESCRIPTION	PART NUMBER
E-2, C-2, T-56	Chadwick Helimuth Vibration Analysis Test Set Trim Balancer Set	9092-2, 192A 123SAV51650-1
H-3, T-58	Strobex (Blade Tracking) RB-101 Vibration Measurement Test Set Blade Tracker	135M-9/11 225300 2520/21/38/58
AH-1, SH-60, T-700	Vibrex (includes Track Balance and Strobex Equipment) Vibration Analysis Test Set	8360 70700-77347-041
S-3, TF-34	Vibration Test Set Instrument/Cable Case Chadwick Helimuth Vibration Analysis Test Set	1361AS200-1 9700

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. The VATS is used on Navy aircraft by organizational and depot level maintenance and flight crew personnel. It is capable of being placed in the aircraft for in-flight troubleshooting and VA without degrading aircraft operation. The VATS is comprised of the following six subsystems, in three portable instrument cases.

a. Fast Fourier Transformer Analyzer. The Fast Fourier Transformer Analyzer is used to record real-time frequency analysis of the input signal.

b. Magnetic Media Input-Output Module. The Magnetic Media Input-Output Module is used to record digital information data appearing on the visual display or machine.

c. Sensors. The Sensors consist of the optical tachometer and the accelerometers. A line-scan camera provides data to the optical tachometer and the analyzer.

d. Flat Panel Display. The Flat Panel Display is an operator visual display unit with alphanumeric and graphic capabilities.

e. Machine Transcribed Record (Hard Copy). This is a device capable of producing hard copy records of both the alphanumeric and graphic data that appear on the Flat Panel Display.

f. Integrated Operator Interface. The Integrated Operator Interface enables the operator to select tests or functions, enter data, and communicate with the test unit.

2. Physical Description. The dimensions of the three portable instrument cases containing VATS are 15.5” x 18.5” x 11.5”, weighing between 35 and 43 pounds.

- Instrument case one contains the Computer Indicator Power Supply which includes the control panel, display, keyboard, and connector panel.

- Instrument case two contains the remote control and optical sensing units (rotary wing configuration only), five triaxial accelerometers, three single axis accelerometers, two rotor blade tachometer pickups, various brackets and blocks used for mounting the sensors to the airframe, and accessory cables.

- Instrument case three contains the printer disk drive and accessory cables.

3. New Development Introduction. The VATS was introduced as new production equipment, and is not currently in production.

4. Significant Interfaces. NA

5. New Features, Configurations, or Material. Existing units are currently being upgraded by Engineering Change Proposal 4871-2-98, which changes the display monitor from black and white to a color presentation, making it easier to read in sunlight. Other changes since the last version of this NTSP have been modifications to the supporting software and upgrading the processor to Pentium class. Support Equipment Change 5470, which addresses all upgrades to VATS, is expected to begin incorporation in July 2000.

H. CONCEPTS

1. Operational Concept. VATS operation is conducted in-flight and during ground maintenance. In-flight operation of VATS equipment is performed by qualified flight crew personnel and ground operation by qualified Navy Aviation Machinist's Mate (AD) maintenance personnel and Marine Corps personnel in Work Center 110. Only qualified maintenance personnel analyze the data collected by the VATS.

2. Maintenance Concept. VATS are pre-positioned at the supporting Aircraft Intermediate Maintenance Departments (AIMDs) as part of the Individual Material Readiness List (IMRL), and are sub-custodied to the supported squadrons. The VATS is used by organizational and depot maintenance personnel and is repaired by intermediate and depot maintenance personnel.

a. Organizational. Maintenance consists of pre-operational and post-operational inspections, and installation, operation, and removal of the equipment on the aircraft.

b. Intermediate. Navy Aviation Electronics Technician (AT) maintenance personnel in AIMD Work Center 670 and Marine Corps personnel assigned to calibration activities conduct fault isolation of the VATS to defective Shop Replaceable Assemblies (SRAs), and repair, recalibrate, or replace the subassemblies using the VATS maintenance manual

NAVAIR 17-15BBA-8. Navy Aviation Electrician's Mate (AE) and AD maintenance personnel and Marine Corps personnel perform operational testing of the VATS in AIMD Work Center 450.

c. Depot. Naval Aviation Depot (NADEP) Cherry Point, North Carolina, maintenance personnel accomplish the VATS camera (optical sensing unit) and the Computer Indicator Power Supply (CIPS) calibration. Dynamic Instruments, Inc. repairs three of the VATS internal cards, the Random Access Memory (RAM) card, the extended memory RAM card, and the analog input No. 2 card. Special equipment has been procured to enable verification of the VATS accelerometer tolerance and range as required by the calibration program, expanding the current capability of the NADEP Cherry Point calibration program. Calibration procedures can be found in NAVAIR 17-20AW-296.

d. Interim Maintenance. Interim intermediate and depot level maintenance performed by Dynamic Instruments, Inc. ended in August 1995.

e. Life Cycle Maintenance Plan. NA

3. Manning Concept. VATS equipment is designed to replace existing vibration test sets, and does not require additional manpower at the organizational or intermediate levels of maintenance. No changes are required to current billet structures or to the available skill levels. No specific Navy Enlisted Classifications (NECs) or Military Occupational Specialties (MOSs) are required for the organizational level AD or the intermediate level AD, AE, and AT ratings or Marine Corps personnel for VATS operation and maintenance.

4. Training Concept. Formal intermediate level training for Work Center 670 technicians is not required to support the VATS. Naval Air Technical Data and Engineering Service Command (NATEC) representatives conduct Practical Job Training (PJT) as required. Aircrew operator training is not required for in-flight VA testing.

a. Initial Training. Initial training was completed in 1991.

b. Follow-on Training. VATS organizational level operator and maintenance training required a minor modification to existing power plants training tracks. No change to track length was required. NATEC representatives conduct PJT at the individual organizational units. Follow-on training for each aircraft is conducted at the Maintenance Training Units (MTU) Naval Air Maintenance Training Units (NAMTRAU) and Naval Air Maintenance Training Group Detachments (NAMTRAGRU DET) listed below.

AIRCRAFT / TRACK CIN	**TRAINING ACTIVITIES**	**COURSE MODEL MANAGER**
E-2/C-2 D-601-0310	MTU 1026 NAMTRAU Norfolk, Virginia	MTU 1026 NAMTRAU Norfolk

AIRCRAFT / TRACK CIN	TRAINING ACTIVITIES	COURSE MODEL MANAGER
D-601-0315		
E-2C Group I/II D/E-601-0313 D/E-601-0316	MTU 1025 NAMTRAGRU DET Miramar, California (See Note) MTU 1026 NAMTRAU Norfolk, Virginia	MTU 1025 NAMTRAGRU DET Miramar (See Note)
H-1 M-601-2014 M-601-2027	MTU 1030 NAMTRAGRU DET Camp Pendleton, California	MTU 1022 NAMTRAU North Island
H-53 D/E-601-2722	MTU 1031 NAMTRAU Norfolk, Virginia MTU 1032 NAMTRAGRU DET Miramar, California	MTU 1031 NAMTRAU Norfolk
H-60 D/E-602-0810 D/E-602-0813	MTU 1005 NAMTRAU Jacksonville, Florida MTU 1022 NAMTRAU North Island, California MTU 1066 NAMTRAGRU DET Mayport, Florida MTU 1067 NAMTRAGRU DET Mayport, Florida	MTU 1022 NAMTRAU North Island
S-3 D/E-601-1710	MTU 1037 NAMTRAU Jacksonville, Florida MTU 1036 NAMTRAU North Island, California	MTU 1037 NAMTRAU Jacksonville

Note: MTU 1025 NAMTRAGRU DET will be moving from Marine Corps Air Station (MCAS) Miramar to NAS Point Mugu, California, beginning in June 2000. The move is currently scheduled for completion with all courses ready for training in October 2000.

c. Student Profiles. NA

d. Training Pipelines. The VATS operation is not taught in a unique training track or course, and no NEC is directly associated with its use. VATS has not been incorporated into either the Career or Initial H-3 Power Plants and Related Systems Organizational Maintenance tracks. MTU 1036 NAMTRAU North Island has incorporated VATS into the S-3 Career Organizational Maintenance track only, and does not teach VATS in the Initial Organizational Maintenance track. VATS organizational level operator and maintenance training has been included through minor modifications to the following Power Plants Organizational Maintenance Tracks and Related Pipeline Courses. Refer to the individual aircraft NTSPs listed in Section M for specific course details.

AIRCRAFT	TRACK / PIPELINE COURSE CIN	COURSE TITLE	SKILL IDENTIFIER
E-2/C-2	D-601-0310 / C-601-9472A	E-2/C-2 T56-A-425 Power Plant and Related Systems (Career) Organizational Maintenance	AD 8305
E-2C	D/E-601-0313 / C-601-9135	E-2C (Group I/II) T56-A-427 Power Plant and Related Systems (Career) Organizational Maintenance	AD 8306
E-2/C-2	D-601-0315 / C-601-9471	E-2/C-2 T56-A-425 Power Plant and Related Systems (Initial) Organizational Maintenance	AD 8805
E-2C	D/E-601-0316 / C-601-9134	E-2C (Group I/II) T56-A-427 Power Plant and Related Systems (Initial) Organizational Maintenance	AD 8806
H-1	M-601-2014 / M-601-2027 / C-601-9351 / C-600-9355	AH-1W and UH-1N Power Plants, Power Trains and Rotors Maintenance UH-1N Power Plants, Power Trains and Rotors Integrated Organizational Maintenance	AD 8380 MOS 6114
H-53	D/E-601-2722 / C-601-9451	MH-53E Power Plants, Rotors and Related Systems (Initial) Organizational Maintenance	AD 8803
H-60	D/E-602-0810 / C-601-9408	H-60 Power Plants and Related Systems Initial	AD 8878
H-60	D/E-601-0813 / C-601-9407	H-60 Power Plants and Related Systems Career	AD 8378

AIRCRAFT	TRACK / PIPELINE COURSE CIN	COURSE TITLE	SKILL IDENTIFIER
S-3	D/E-601-1710 / C-601-9876A	S-3 Power Plant and Related Systems (Career) Organizational Maintenance	AD 8346

I. ONBOARD (IN-SERVICE) TRAINING

1. Proficiency or Other Training Organic to the New Development. VATS organizational level operator and maintenance training required a minor modification to existing Power Plants training tracks. No change to track length was required. NATEC representatives conduct On-the-Job Training at the individual organizational units.

a. Aviation Maintenance Training Continuum System. AMTCS will provide career path training to the Sailor or Marine from their initial service entry to the end of their military career. AMTCS is planned to be an integrated system that will satisfy the training and administrative requirements of both the individual and the organization. The benefits will be manifested in the increased effectiveness of the technicians and the increased efficiencies of the management of the training business process. By capitalizing on technological advances and integrating systems and processes where appropriate, the right amount of training can be provided at the right time, thus meeting the Chief of Naval Operations (CNO) mandated "just-in-time" training approach.

Technology investments enable the development of several state-of-the-art training and administrative tools: Computer-Based Training (CBT) for the technicians in the Fleet in the form of ICW with Computer Managed Instruction (CMI) and Computer Aided Instruction (CAI) for the schoolhouse.

Included in the AMTCS development effort is the Aviation Maintenance Training Continuum System - Software Module (ASM) which provides testing [Test and Evaluation (TEV)], recording [Electronic Training Jacket (ETJ)], and a Feedback system. The core functionality of these AMTCS tools are based and designed around the actual maintenance-related tasks the technicians perform, and the tasks are stored and maintained in a Master Task List (MTL) data bank. These tools are procured and fielded with appropriate COTS hardware and software, i.e. Fleet Training Devices (FTD) - Laptops, PCs, Electronic Classrooms (ECR), Learning Resource Centers (LRC), operating software, and network software and hardware.

Upon receipt of direction from OPNAV (N889H), AMTCS is to be implemented and the new tools integrated into the daily training environment of all participating aviation activities and supporting elements. AMTCS will serve as the standard training system for aviation maintenance training within the Navy and Marine Corps, and is planned to supersede the existing MTIP and Maintenance Training Management and Evaluation Program (MATMEP) programs.

2. Personnel Qualification Standards. NA

3. Other Onboard or In-Service Training Packages. NA

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N00140-86-C-9090	Dynamic Instruments, Inc.	3860 Calle Fortunada San Diego, CA 92123-1825

2. Program Documentation. The VATS Integrated Logistics Support Plan (ILSP), NAEC-CSE-88-013 was last updated in May 1990.

3. Technical Data Plan. The Vibration Troubleshooting and Operator Manual has been updated to include the following fixed wing aircraft: E-2, C-2, and S-3. This manual addresses acceptable levels of vibration, vibration structures, and troubleshooting steps for all Navy helicopters, and as data becomes available, VATS operation procedures for each aircraft will be included. Long-term technical data plan objectives called for the incorporation of VATS maintenance procedures in the appropriate Maintenance Instruction Manuals (MIM) for each aircraft, and all the appropriate MIMs were updated in third quarter FY96. Refer to part IV.B.3 of this NTSP for a listing of applicable MIMs.

4. Test Sets, Tools, and Test Equipment. NA

5. Repair Parts. Parts provisioning is accomplished through normal supply channels. The Navy Support Date was achieved in August 1995.

6. Human Systems Integration. NA

K. SCHEDULES

1. Schedule of Events

a. Installation and Delivery Schedules. Delivery of all VATS units is complete. Commander Naval Air Force, United States Atlantic Fleet (COMNAVAIRLANT), and Commander Naval Air Force, United States Pacific Fleet (COMNAVAIRPAC) have taken delivery and distributed the VATS units throughout their respective commands.

b. Ready For Operational Use Schedule. VATS was Ready for Operational Use (RFOU) upon fleet delivery and verification of aircraft type, model, and series software and procedures by respective aircraft Cognizant Field Activities.

c. Time Required to Install at Operational Sites. NA

d. Foreign Military Sales and Other Source Delivery Schedule. NA

e. Training Device and Delivery Schedule. A vibration simulator was procured for each training site. Delivery of the simulators was completed in 1996.

L. GOVERNMENT FURNISHED EQUIPMENT AND CONTRACTOR FURNISHED EQUIPMENT TRAINING REQUIREMENTS. NA

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Vibration Analysis Test Set Integrated Logistics Support Plan	ILSP-NAEC-CSE 88-013	NAEC-52812	Approved May 1990
E-2C Aircraft NTP	A-50-8716D/A	PMA231	Approved Nov 1997
C-2A Reprocured Aircraft NTP	A-50-8308B/A	PMA221	Approved Oct 1996
United States Marine Corps H-1 Upgrades Program NTSP	A-50-9602/A	PMA267	Approved Dec 1997
S-3B NTSP	A-50-8310D/P	PMA244	Proposed May 2000
SH/UH-3H Helicopter Transition NTP	A-50-8901A/D	PMA225	Draft May 1994
SH-60B Light Airborne Multi-Purpose System NTP	A-50-7702D/A	PMA299	Approved Feb 1993
SH-60F Carrier Inner Zone ASW Helicopter NTSP	A-50-8508D/P	PMA299	Proposed Jun 2000
HH-60H Helicopter Strike Rescue/Special Warfare Helicopter NTP	A-50-8714B/A	PMA299	Approved Dec 1993
CH-60S Multi-Mission Helicopter NTSP	A-50-9902/P	PMA299	Proposed Nov 1999

PART II - BILLET AND PERSONNEL REQUIREMENTS

The following elements are not affected by the VATS and, therefore, are not included in Part II of this NTSP:

II.A. Billet Requirements

II.A.1.a. Operational and Fleet Support Activity Activation Schedule

II.A.1.b. Billets Required for Operational and Fleet Support Activities

II.A.1.c. Total Billets Required for Operational and Fleet Support Activities

II.A.2.a. Operational and Fleet Support Activity Deactivation Schedule

II.A.2.b. Billets to be Deleted in Operational and Fleet Support Activities

II.A.2.c. Total Billets to be Deleted in Operational and Fleet Support Activities

II.A.3. Training Activities Instructor and Support Billet Requirements

II.A.4. Chargeable Student Billet Requirements

II.A.5. Annual Incremental and Cumulative Billets

II.B. Personnel Requirements

II.B.1. Annual Training Input Requirements

Note: Follow-on Training was integrated into existing Power Plants training for each aircraft model. All courses have been modified and require no additional changes. Modifications did not cause any changes in course or track length. VATS introduction has not caused an increase or decrease to previously existing manpower.

PART III - TRAINING REQUIREMENTS

The following elements are not affected by the VATS and, therefore, are not included in Part III of this NTSP:

III.A.1. Initial Training Requirements

III.A.2. Follow-on Training

III.A.2.a. Existing Courses

III.A.2.b. Planned Courses

III.A.2.c. Unique Courses

III.A.3. Existing Training Phased Out

Note: Follow-on Training was integrated into existing Power Plants training for each aircraft model. All courses have been modified and require no additional changes. Modifications did not cause any changes in course or track length. VATS introduction has not caused an increase or decrease to previously existing manpower.

PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

The following elements are not affected by the VATS and, therefore, are not included in Part IV of this NTSP:

IV.A. Training Hardware

IV.A.1. TTE / GPTE / SPTE / ST / GPETE / SPETE

IV.B. Courseware Requirements

IV.B.1. Training Services

IV.B.2. Curricula Materials and Training Aids

IV.C. Facility Requirements

IV.C.1. Facility Requirements Summary (Space/Support) by Activity

IV.C.2. Facility Requirements Detailed by Activity and Course

IV.C.3. Facility Project Summary by Program

Note: Follow-on Training was integrated into existing Power Plants training for each aircraft model. All courses have been modified and require no additional changes. Modifications did not cause any changes in course or track length. VATS introduction has not caused an increase or decrease to previously existing manpower.

IV.A.2. TRAINING DEVICES

DEVICE: Vibration Simulator
DESCRIPTION: The Vibration Simulator allows the student to observe the reading on the test set under varied simulated vibration and/or unbalanced conditions
MANUFACTURER: Dynamic Instruments
CONTRACT NUMBER: N00140-86-C-9090
TEE STATUS: Complete

TRAINING ACTIVITY: MTU 1026 NAMTRAU
LOCATION, UIC: Norfolk, 44680

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9472A (Track D-601-0310)
1	Jun 96	Jun 96	Onboard	C-601-9135 (Track D-601-0313)

TRAINING ACTIVITY: MTU 1005 NAMTRAU
LOCATION, UIC: Jacksonville, 39469

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9407 (Track D-601-0813)
1	Jun 96	Jun 96	Onboard	C-601-9408 (Track D-602-0810)

TRAINING ACTIVITY: MTU 1037 NAMTRAU
LOCATION, UIC: Jacksonville, 39469

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9876A (Track D-601-1710)

TRAINING ACTIVITY: MTU 1066 NAMTRAGRU DET
LOCATION, UIC: Mayport, 39470

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9407 (Track D-601-0813)
1	Jun 96	Jun 96	Onboard	C-601-9408 (Track D-602-0810)

TRAINING ACTIVITY: MTU 1025 NAMTRAGRU DET
LOCATION, UIC: Miramar, 39473

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9135 (Track E-601-0313)

IV.A.2. TRAINING DEVICES

TRAINING ACTIVITY: MTU 1022 NAMTRAU
LOCATION, UIC: North Island, 39476

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9407 (Track E-601-0813)
1	Jun 96	Jun 96	Onboard	C-601-9408 (Track E-602-0810)

TRAINING ACTIVITY: MTU 1036 NAMTRAU
LOCATION, UIC: North Island, 39476

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9876A (Track E-601-1710)

TRAINING ACTIVITY: MTU 1030 NAMTRAGRU DET
LOCATION, UIC: Camp Pendleton, 31053

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9351 (Track M-601-2014)
1	Jun 96	Jun 96	Onboard	C-600-9355 (Track M-601-2027)

TRAINING ACTIVITY: MTU 1031 NAMTRAU
LOCATION, UIC: Norfolk, 44680

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9451 (Track D-601-2722)

TRAINING ACTIVITY: MTU 1032 NAMTRAGRU DET
LOCATION, UIC: Miramar, 93473

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9451 (Track E-601-2722)

TRAINING ACTIVITY: MTU 1067 NAMTRAU
LOCATION, UIC: North Island, 39476

QTY REQD	DATE REQD	RFT DATE	STATUS	COURSES SUPPORTED
1	Jun 96	Jun 96	Onboard	C-601-9407 (Track E-601-0813)
1	Jun 96	Jun 96	Onboard	C-601-9408 (Track E-602-0810)

IV.B.3. TECHNICAL MANUALS

CIN, COURSE TITLE: C-601-9135, E-2C (Group I/II) T56-A-427 Power Plants/Propeller (Career) Organizational Maintenance (Track D-601-0313)
TRAINING ACTIVITY: MTU 1026 NAMTRAU
LOCATION, UIC: Norfolk, 44680

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-C2AHA-290210 E-2/C-2 Power Plants Maintenance Instruction Manual, O Level	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9135, E-2C (Group I/II) T66-A-427 Power Plants/Propeller (Career) Organizational Maintenance (Track D-601-0313)
TRAINING ACTIVITY: MTU 1025 NAMTRAGRU DET
LOCATION, UIC: Miramar, 39473

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-C2AHA-290210 E-2/C-2 power Plants Maintenance Instruction Manual, O Level	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9407, H-60 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-0813)
TRAINING ACTIVITY: MTU 1005 NAMTRAU
LOCATION, UIC: Jacksonville, 39469

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9407, H-60 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-0813)
TRAINING ACTIVITY: MTU 1066 NAMTRAGRU DET
LOCATION, UIC: Mayport, 39470

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

IV.B.3. TECHNICAL MANUALS

CIN, COURSE TITLE: C-601-9407, H-60 Power Plants and Related Systems (Career) Organizational Maintenance (Track E-601-0813)
TRAINING ACTIVITY: MTU 1022 NAMTRAU
LOCATION, UIC: North Island, 39476

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9407, H-60 Power Plants and Related Systems (Career) Organizational Maintenance (Track E-601-0813)
TRAINING ACTIVITY: MTU 1067 NAMTRAU
LOCATION, UIC: North Island, 39476

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9408, H-60 Power Plants and Related Systems (Initial) Organizational Maintenance (Track E-602-0810)
TRAINING ACTIVITY: MTU 1022 NAMTRAU
LOCATION, UIC: North Island, 39476

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9408, H-60 Power Plants and Related Systems (Initial) Organizational Maintenance (Track D-602-0810)
TRAINING ACTIVITY: MTU 1066 NAMTRAGRU DET
LOCATION, UIC: Mayport, 39470

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

IV.B.3. TECHNICAL MANUALS

CIN, COURSE TITLE: C-601-9408, H-60 Power Plants and Related Systems (Initial) Organizational Maintenance (Track D-602-0810)
TRAINING ACTIVITY: MTU 1005 NAMTRAU
LOCATION, UIC: Jacksonville, 39469

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9408, H-60 Power Plants and Related Systems (Initial) Organizational Maintenance (Track E-602-0810)
TRAINING ACTIVITY: MTU 1067 NAMTRAU
LOCATION, UIC: North Island, 39476

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9351, AH-1W Power Trains, Rotors and Related Systems Integrated Organizational Maintenance (Track M-601-2014)
TRAINING ACTIVITY: MTU 1030 NAMTRAGRU DET
LOCATION, UIC: Camp Pendleton, 31053

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-600-9355, UH-1N Power Trains, Rotors and Related Systems Integrated Organizational Maintenance (Track M-601-2027)
TRAINING ACTIVITY: MTU 1030 NAMTRAGRU DET
LOCATION, UIC: Camp Pendleton, 31053

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9451, MH-53E Power Plants, Rotors and Related Systems (Initial) Organizational Maintenance (Track D-601-2722))
TRAINING ACTIVITY: MTU 1031 NAMTRAU
LOCATION, UIC: Norfolk, 44680

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9451, MH-53E Power Plants, Rotors and Related Systems (Initial) Organizational Maintenance (Track E-601-2722)
TRAINING ACTIVITY: MTU 1032 NAMTRAGRU DET
LOCATION, UIC: Miramar, 39473

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-1A-24 Vibration Troubleshooting and Operator Manual	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9472, E-2/C-2 T56-A-425 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-0310)
TRAINING ACTIVITY: MTU 1026 NAMTRAU
LOCATION, UIC: Norfolk, 44680

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-C2AHA-290210 E-2/C-2 power Plants Maintenance Instruction Manual, O Level	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9876, S-3 Power Plants and Related Systems (Career) Organizational Maintenance (Track D-601-1710)
TRAINING ACTIVITY: MTU 1037 NAMTRAU
LOCATION, UIC: Jacksonville, 39469

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-S3AAA-2-3.6 Testing and Troubleshooting for S-3B Engine and Related Systems	Hard copy	14	Jun 96	Onboard

CIN, COURSE TITLE: C-601-9876, S-3 Power Plants and Related Systems (Career) Organizational Maintenance (Track E-601-1710)
TRAINING ACTIVITY: MTU 1036 NAMTRAU
LOCATION, UIC: North Island, 39476

TECHNICAL MANUAL NUMBER / TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
NA-01-S3AAA-2-3.6 Testing and Troubleshooting for S-3B Engine and Related Systems	Hard copy	14	Jun 96	Onboard

PART V - MPT MILESTONES

COG CODE	MPT MILESTONES	DATE	STATUS
PDA	Conducted Analysis of MPT requirements	Jul 86	Completed
DMSO	Programmed Manpower and Training Resource Requirements	Feb 87	Completed
PDA	Promulgated ILS Master Plan	Feb 87	Completed
PDA	Promulgated Approved NTP	Mar 87	Completed
PDA	Promulgated ILSP (Update)	May 90	Completed
OPTEVFOR	Began OPEVAL/TECHEVAL	Jul 90	Completed
OPTEVFOR	Completed OPEVAL/TECHEVAL	Aug 90	Completed
TSA	Delivered Curricula Materials	Aug 90	Completed
DA	Achieved IOC	Sep 90	Completed
TSA	Began Initial Training	Nov 90	Completed
TSA	Began Training Services	Nov 90	Completed
TSA	Completed Initial Training	Mar 91	Completed
TSA	Began Follow-On Training	Feb 91	Completed
PDA	Achieved NSD	Aug 95	Completed
PDA	Completed Interim Maintenance	Aug 95	Completed
MPT	Promulgated Updated NTP	May 96	Completed
TSA	Delivered TTE	Sep 96	Completed
ACNO	Approved and Promulgated NTSP	Mar 97	Completed
TSA	Developed Draft NTSP	Dec 99	Completed
TSA	Developed Proposed NTSP	Mar 00	Completed
TSA	Begin MTU 1025 NAMTRAGRU DET Move to Point Mugu	Jun 00	Completed
PDA	Begin Incorporation of Support Equipment Change 5470	Sep 00	Pending
TSA	Complete MTU 1025 Move	Oct 00	Pending

PART VI - DECISION ITEMS / ACTION REQUIRED

DECISION ITEM OR ACTION REQUIRED	COMMAND ACTION	DUE DATE	STATUS
None			

PART VII - POINTS OF CONTACT

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